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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF:

Hiroaki KATO, et al.

SERIAL NO: 10/811,843

GROUP: 3661

FILED: March 30, 2004

EXAMINER:

FOR: VEHICLE MOTION CONTROL METHOD AND VEHICLE MOTION  
CONTROL APPARATUS

**LETTER**

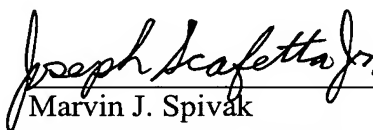
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P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith is a European Office Action for the Examiner's consideration. The reference(s) cited therein have been previously filed on July 18, 2005.

Respectfully Submitted,

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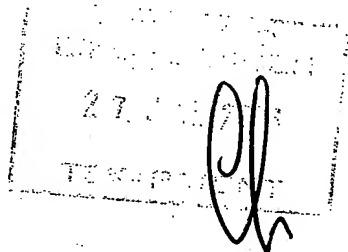
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Application No. 04 007 946.9 - 1264	Ref. EP 41348	Date 24.01.2006
Applicant TOYODA KOKI KABUSHIKI KAISHA		

#### Communication pursuant to Article 96(2) EPC

The examination of the above-identified application has revealed that it does not meet the requirements of the European Patent Convention for the reasons enclosed herewith. If the deficiencies indicated are not rectified the application may be refused pursuant to Article 97(1) EPC.

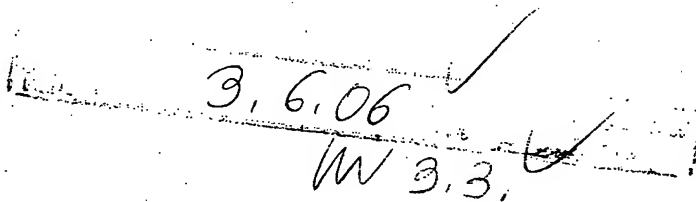
You are invited to file your observations and insofar as the deficiencies are such as to be rectifiable, to correct the indicated deficiencies within a period

**of 4 months**

from the notification of this communication, this period being computed in accordance with Rules 78(2) and 83(2) and (4) EPC.

One set of amendments to the description, claims and drawings is to be filed within the said period on separate sheets (Rule 36(1) EPC).

**Failure to comply with this invitation in due time will result in the application being deemed to be withdrawn (Article 96(3) EPC).**



Van der Veen, F  
Primary Examiner  
for the Examining Division

Enclosure(s): 8 page/s reasons (Form 2906)



The examination is being carried out on the **following application documents:**

**Description, Pages**

1-45<sup>\*</sup> as originally filed

**Claims, Numbers**

1-22 as originally filed

**Drawings, Sheets**

1/15-15/15 as originally filed

**Comments**

\* Original numbering by the applicant. Page 45 is numbered 44a by the applicant.

- 1 The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

07/18/05 {  
D1: DE 100 49 565 A1 (AISIN SEIKI K.K., KARIYA) 3 May 2001 (2001-05-03)  
D2: WO 02/14137 A (DAIMLERCHRYSLER AG) 21 February 2002 (2002-02-21)  
D3: DE 100 59 689 A1 (HONDA GIKEN KOGYO K.K., TOKIO/TOKYO) 21 June 2001 (2001-06-21)  
D4: WO 90/14980 A (GROUP LOTUS PLC) 13 December 1990 (1990-12-13)  
D5: DE 40 10 277 A1 (AISIN SEIKI K.K., KARIYA, AICHI, JP) 25 October 1990 (1990-10-25)  
D6: US-A-5 480 219 (KOST ET AL) 2 January 1996 (1996-01-02)



- 2 The application does not meet the requirements of Article 84 EPC, because at least independent claims 1 and 12 are not clear.

2.1 The following term:

- "control method for executing steering control or drive power control",

used in claims 1 and 12, is vague and unclear and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claim/s unclear (Article 84 EPC).

The ambiguous term cannot be understood purely on the basis of the wording used, because the term "drive power control" may have various distinct meanings:

- a. "drive power control" of the power driven steering assistance
  - In this interpretation, the "drive power control" would be a subset of the "steering control", and the wording would read:
    - "control method for executing steering control or the control of a component which is part of the steering system "
- b. "drive power control" of the propulsion unit of the vehicle or any other driven apparatus in the vehicle not related to the steering system
  - In this interpretation, the mentioned "drive power control" would refer to a component which is not part of the steering system.

The above two interpretations a. and b. are contradictory, and thereby the technical scope of the mentioned "control method" cannot unambiguously be established.

Considering that the scope of the application (as mentioned in the description) relates to steering systems only, it seems that the first meaning (a.) would best meet the intention of the applicant.

Given the fact that the mentioned technical term "or drive power control" hardly contributes to the scope of the invention (see under a. above), it seems appropriate to resolve the lack of clarity above by removing this technical term.



The applicant is requested to resolve this clarity issue.

2.2 Also, the following terms:

- "the behaviour amount"
- "based on steering characteristic"
- "which occurs around an axis in the vertical direction"

used in claims 1 and 12, are vague and unclear and leave the reader in doubt as to the meaning of the technical features to which they refer, thereby rendering the definition of the subject-matter of said claims unclear (Article 84 EPC).

The term "the behaviour amount" has no clear and distinct meaning to a skilled person, and may apply to many behavioural properties which a vehicle can have. Therefore, the skilled person cannot establish the scope of this term, leaving the scope of the invention unclear.

Similarly, the term "steering characteristic" without any further technical features is not clear to enable the establishment of the appropriate scope of the invention.

Neither is it sufficiently clear how "the behaviour amount" can "occur around an axis in the vertical direction". However, in the light of the description, it seems that the only envisaged properties relating to such a "vertically oriented behaviour" are:

- yaw rate (i.e. around the vertical axis),
- yaw velocity (i.e. around the vertical axis),
- various wheel slip angles (i.e. defined around the vertical axis),

so it seems possible to define the subject-matter by means of well-established technical terms, and no further embodiments are envisaged.

The applicant is requested to replace the indicated unclear terms by well-established technical terms, by introducing a more clear and appropriate wording which has been derived from the description of the application as filed (Article 123(2) EPC).

2.3 The following term



- "to any one of claims ..."

used in the dependency statements of claims 5-11, 15-22, is detrimental to a clear reading of these claims, since each of the dependency statements in these claims relate to a single claim only, whereas the term suggest a multiple dependency.

It therefore suggested to remove the unclear term mentioned above from the indicated claims to improve their legibility.

- 2.4 The vague and imprecise statement in the description on page 44 (paragraphs [0111] and [0112] implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity of the claims (Article 84 EPC) when used to interpret them (see the Guidelines, C-III, 4.3a). This statement should therefore be amended to remove this inconsistency, preferably by removing these paragraphs.

3. Furthermore, the above-mentioned lack of clarity notwithstanding, the subject-matter of at least independent claims 1 and 12 is not new in the sense of Article 54(1) and (2) EPC, and therefore the requirements of Article 52(1) EPC are not met, in particular when applying the interpretations mentioned earlier.

- 3.1 The document D1 (see D1, Abstract) discloses (the references in parentheses applying to this document):

(conform claim 1)

A vehicle motion control method

- **suitable for** executing
  - steering control (see Abstract)
  - (~~or drive power control~~)
- **suitable for** the vehicle
- based on steering characteristic ("Fahrzeugfahrzustand")
  - of the vehicle
  - obtained based on
    - the behavior amount of the vehicle
    - which occurs around an axis
    - in the vertical direction



- with respect to the vehicle body,  
("Seitenschlupfwinkel", "Giergeschwindigkeit")
- comprising:
  1. behavior amount acquiring step
    - of acquiring the behavior amount of said vehicle;  
("Seitenschlupfwinkel" by calculus, "Giergeschwindigkeit" by measurement)
  2. differentiation step
    - of obtaining
      - a behavior amount differentiated value
      - by differentiating said behavior amount; and  
("der geschätzte Seitenschlupfwinkel wird [...] differenziert")
  3. steering characteristic determination step
    - of determining said vehicle steering characteristic based on
      - said behavior amount differentiated value.  
("Fahrzeugfahrzustand", "...wird der Fahrzeugkörperseitenschlupfwinkel geschätzt ..")

The subject-matter of claim 1 is therefore not new (Article 54(1) and (2) EPC).

Furthermore, document D1 also discloses all technical features of claim 1 when considering Fig. 6: whereby the yaw acceleration ("Gierwinkelbeschleunigung") is obtained by means of the differentiation module ("66: Differenzierschaltung"). Also documents D2-D6 disclose the process of obtaining one or both of the following

- vehicle slip velocity
- vehicle yaw acceleration

by means of differentiation, and such result is used for the control of the steering system of the vehicle.

- 3.2 Following the same reasoning of 3.1 above, the document D1 similarly discloses (the references in parentheses applying to this document):



(conform claim 12)

A vehicle motion control apparatus

- **suitable for** executing
  - steering control
  - (~~or drive power control~~)
- for the vehicle
- based on steering characteristic
  - of the vehicle
  - obtained based on
    - the behavior amount of the vehicle
      - which occurs around an axis
        - in the vertical direction
          - with respect to the vehicle body,
- comprising:
  1. behavior amount acquiring means
    - **suitable for** acquiring the behavior amount of said vehicle;
  2. differentiation means
    - **suitable for** obtaining a behavior amount differentiated value
      - by differentiating said behavior amount: and
  3. steering characteristic determination means
    - **suitable for** determining said vehicle steering characteristic
      - based on said behavior amount differentiated value.

The subject-matter of claim 12 is therefore not new (Article 54(1) and (2) EPC).

Following a similar reasoning, this subject-matter is also disclosed by documents D2-D6.

- 4 The applicant is requested to file new claims which take account of the above comments.
- 4.1 The applicant is suggested to include the technical features of one of the dependent claims 2, 3, 5 or 8 into a new and clarified independent claim 1





(method).

Similarly, the independent apparatus claim (currently claim 12) should also be adapted accordingly.

- 4.2 To meet the requirements of Rule 27(1)(b) EPC, the most pertinent document from the set of documents D1-D6 in relation to the new independent claim(s) should be identified in the description and its relevant contents should be indicated.

The applicant should ensure that it is clear from the description which features of the subject-matter of the new independent claim(s) are known from this most pertinent document (see the Guidelines, C-III, 2.3b).

- 4.3 Independent claims 1 and 12 are not in the two-part form in accordance with Rule 29(1) EPC, which in the present case would be appropriate, with those features known in combination from the prior art (i.e. the most pertinent document chosen from documents D1-D6) being placed in the preamble (Rule 29(1)(a) EPC) and with the remaining features being included in the characterising part (Rule 29(1)(b) EPC).

If, however, the applicant is of the opinion that the two-part form would be inappropriate, then reasons therefor should be provided in the letter of reply.

- 4.4 Care should be taken to meet the requirements for Unity of Invention (Article 82, Rule 30 EPC), when the currently dependent claims are redrafted in respect to the new independent claim(s).
- 4.5 In order to facilitate the examination of the conformity of the amended application with the requirements of Article 123(2) EPC, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based.

If the applicant regards it as appropriate these indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed.



- 4.6 When filing amended claims the applicant should at the same time bring the description into conformity with the amended claims. Care should be taken during revision, especially of the introductory portion and any statements of problem or advantage, not to add subject-matter which extends beyond the content of the application as originally filed (Article 123(2) EPC).
- 4.7 The applicant is requested to effect the amendments by filing replacement pages for only those pages which have been amended. Unnecessary recasting of the description should be avoided. An amended abstract is not required. The applicant should also take account of the requirements of Rule 36(1) EPC. If hand-written amendments are submitted, they should be clearly legible for the printer. *According to the decision of the President of the EPO under Rule 35(2) EPC (OJ EPO 12/2001, 563) one set of the amended documents of the European patent application shall be provided.*